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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,609	04/12/2004	Juin-Yih Lai	18817-096	3297

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EXAMINER	
CRAIGO, WILLIAM A	

ART UNIT	PAPER NUMBER
1615	

MAIL DATE	DELIVERY MODE
10/06/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/822,609	LAI ET AL.	
	Examiner	Art Unit	
	WILLIAM CRAIGO	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30,31,36 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30,31,36 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

The remarks and amendments filed on 06 April, 2009 are acknowledged.

Claim 40 has been cancelled, claims 30, 31, 36, 37 are pending in the application.

Claim Objections

Objection to claim 30 is withdrawn due to applicant amendment.

Claim Rejections - 35 USC § 112

Rejection of claims 30, 31, 36, 37 under 35 USC 112 2nd is withdrawn due to applicant amendment.

Response to Arguments

Maintained Rejections

Claim Rejections - 35 USC § 102

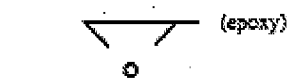
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

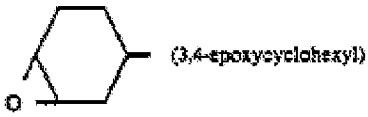
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

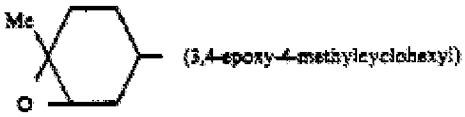
Claims 30, 31 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by SAU (US 5,071,978 see PTO-892).

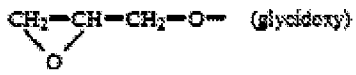
SAU teaches a material having cross-linking structure that is a modified substrate bonded to bridges formed by a cross-linking agent. The substrate contains chitosan (claim 10) and the cross-linking agent is formed from the following X groups (see e.g. col. 2 line 26 to col. 3 line 5), specifically:

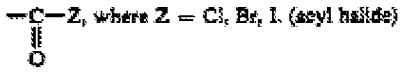
i) Cl,Br,I.
ii) —N=C=O (isocyanate)

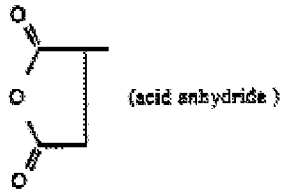

(epoxy)

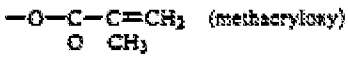

(3,4-epoxycyclohexyl)


(3,4-epoxy-4-methylcyclohexyl)

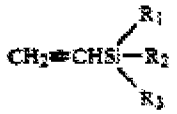

(glycidoxy)


(acyl halide)


(acid anhydride)


(methacryloxy)

The agent further comprises a silicon (Z group in instant claim 30) that is attached to R1, R2, R3 (Y groups in instant claim 30). See e.g. the formula at col. 2 line 21 and the formula at col. 3 line 10). An example of the full cross-linking agent in the reference is given as the following:



where R1, R2 and R3 are alkoxy. See col. 2 line 31-34 and col. 3 line 10. This anticipates the instant invention where X is: H_2C=CH-, Z is: Si, and Y_3 is: an alkoxy (i.e. alkoxide). Furthermore, the alkoxy can be hydrolyzed (see e.g. col. 3 lines 34-38) thereby by creating a "dehydrating-combination reaction" when self-crosslinking or combining (see e.g. col. 4 lines 10-13): instant claim 31. The crosslinking agent further comprises GPTMS (see e.g. col. 3 lines 14-18 and claim 5): instant claim 36.

Applicant's arguments filed 06 April, 2009 have been fully considered but they are not persuasive.

In the response to office action dated 03 November, 2008 applicant argues that the SAU reference teaches away from the claimed invention. Further applicant argues that the structure defined by the instant claims is distinguished from the prior art because the method of the prior art will result in ". . . chitosan precipitation or chitosan gel without cross-linking structure." This is not found persuasive because SAU, example 1 (col. 4, line 65-68) teaches a mixture of 689g of t-butyl alcohol and 27.4g of NaOH in 100g of water. Since the solvent system taught in SAU is not a simple aqueous solution but in fact: (a) an alcohol and water mixture with water a minor co-solvent and (b) is described in col 5, line 4 as a "slurry". Therefore, there is no presumption that the chitosan must be soluble in the reaction medium in order for the

reaction to produce a chitosan with a "cross-linking structure" as recited in the instant claims.

Applicant's attention is also drawn to 35 USC 282:

A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. Notwithstanding the preceding sentence, if a claim to a composition of matter is held invalid and that claim was the basis of a determination of nonobviousness under section 103(b)(1), the process shall no longer be considered non-obvious solely on the basis of section 103(b)(1). The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

Further applicant's attention is drawn to MPEP 2131.05 Nonanalogous or Disparaging Prior Art:

"Arguments that the alleged anticipatory prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting In re Self, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). See also State Contracting & Eng ' g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (The question of whether a reference is analogous art is not relevant to whether that reference anticipates. A reference may be directed to an entirely different problem than

the one addressed by the inventor, or may be from an entirely different field of endeavor than that of the claimed invention, yet the reference is still anticipatory if it explicitly or inherently discloses every limitation recited in the claims.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over SAU.

SAU teaches a material having cross-linking structure that is a modified substrate bonded to bridges formed by a cross-linking agent, as described above.

SAU does not explicitly teach where the content of GPTMS is about 0.5% to 70% of the chitosan. However, SAU does teach e.g. the use of 5% wt of the polysaccharide in Example 1 (100g of cellulose and 5g of GPTMS) and 15% in Example 2 (100g cellulose and 15g of GPTMS): instant claim 37.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to make a material comprising a GPTMS content of between 0.5% to 70% of chitosan, as taught by SAU. One of ordinary skill in the art at the time the invention was made would have been motivated to combine these elements into a single material because SAU teaches the use of chitosan (claim 10), a polysaccharide and the use of GPTMS with cellulose (Ex. 1 and 2), a polysaccharide at 5 and 15%. Absent any evidence to the contrary, and based upon the teachings of the prior art, there would have been a reasonable expectation of success in practicing the instantly claimed invention.

Since this rejection was not addressed in the reply filed on 06 April, 2009, the rejection stands uncontested and is maintained.

Conclusion

No claims allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM CRAIGO whose telephone number is (571)270-1347. The examiner can normally be reached on Monday - Friday, 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571) 272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

William Craigo
Art Unit 1615

/Leon B Lankford/
Primary Examiner, Art Unit 1651